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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/767,628	01/28/2004	Mike Binnard	PA0568-US / 11269.65	5665
7590 07/14/2005			EXAMINER	
The Law Office of Steven G. Roeder 5560 Chelsea Avenue La Jolla, CA 92037			GUTIERREZ, KEVIN C	
			ART UNIT	PAPER NUMBER
			2851	
DATE MAILED: 07/14/2005				

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/767,628

Applicant(s)

BINNARD, MIKE

Examiner

Kevin Gutierrez

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 January 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-50 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-50 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 28 January 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>5-24-04 & 1-28-04</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Specification

1. The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required: Regarding claim 49, the specification does not disclose any method of making a wafer.

Claim Objections

2. Claims 24-25, 48-50 are objected as being improper dependent claims:
- a. Claim 24 is objected to as being an improper dependent claim. The claim is directed to a device manufactured with the apparatus of claim 23. However, it is conceivable that another apparatus other than the apparatus of claim 23 can manufacture the device. For example, another apparatus such as laser printer can manufacture the device. Hence, the claim does not further limit claim 23 as required by 35 USC 112, 4th paragraph.
 - b. Claim 25 is objected to as being an improper dependent claim. The claim is directed to a wafer on which an image has been formed by the apparatus claim 23. However, it is conceivable that another apparatus other than the apparatus claim 23 can form the image on the wafer. For example, another apparatus such as an ink jet printer can form the image on the wafer. Hence, the claim does not further limit claim 23 as required by 35 USC 112, 4th paragraph.

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c. Claim 48 is objected to as being an improper dependent claim. The claim required the stage assembly made by the method of claim 26. However, it is conceivable that the stage assembly can be made by another method other than the method of claim 26. For example, the stage assembly can be made by another method such as molding. Hence, the claim does not further limit claim 26 as required by 35 USC 112, 4th paragraph.

d. Since claims 49 and 50 are depended on claim 48, they are also objected to as being improper dependent claims, accordingly.

Appropriate correction is required.

3. Claims 27-50 are objected to because of the following informalities:

a. Claims 27-50 provides only structural limitations and/or functional language, but, since the claim does not set forth any active positive steps involved in the method/process, it is not apparent what method/process applicant is intending to encompass.

b. Claim 49 has no transitional phrase. Hence it is unclear what active positive steps define the method.

Appropriate correction is required.

Double Patenting

4. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

5. Claims 1, 2, 26 and 27 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 3 of prior U.S. Patent No. 6,757,053. Although the conflicting claims are not identical, they are not patentably distinct from each other because the similar elements have different labels, but perform the same functions.

With respect to the method claims, it would be obvious to use the claimed invention to perform the functions of the claimed methods.

Regarding claims 1 and 26,

- "A stage assembly that moves a device relative to a mounting area, the stage assembly comprising (col. 34, lines 45-46):

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- a stage that retains the device (col. 34, line 47)
- a stage mover assembly connected to the stage, (col. 34, line 48)
- the stage mover assembly moving the stage and generating reaction force, (col. 34, lines 48-50) and
- a reaction assembly coupled to the stage mover assembly (col. 34, lines 52-54 where the reaction assembly is the reaction mass assembly),
- the reaction assembly including a first reaction subassembly (col. 34, lines 52-53) where first reaction assembly is the X reaction component) having a first mass (col. 34, line 55 where first mass is the first X reaction masses),
- a second reaction subassembly (col. 34, line 53 where second reaction assembly is the Y reaction component) having a second mass (col. 34, line 57 where the second mass is the Y reaction masses) and
- a connector assembly (col. 34, line 66, where connector assembly is the connector) that connects the reaction subassemblies together (col. 34, lines 66-67, where the X reaction masses are connected to the Y reaction mass which connects the X and Y reaction components),
- allows for relative movement of the masses with at least one degree of freedom (col. 34, line 67 and col. 35, line 1) and
- inhibits relative movement of the masses with at least one degree of freedom (col. 35, lines 1-2)."

Regarding claims 2 and 27,

- “wherein the stage mover assembly moves the stage with two degrees of freedom (col. 34, line 48-50),
- the reaction assembly reduces the reaction forces in the two degrees of freedom that are transferred to the mounting area (col. 34, line 63-65), and
- the connector assembly allows for relative movement of the masses with at least two degrees of freedom (col. 34, line 67 and col. 35, lines 1-4 where the two degrees of freedom are the x and y-axes).”

6. Claims 3 and 28 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 3 and 4 of U.S. Patent No. 6,757,053. Although the conflicting claims are not identical, they are not patentably distinct from each other the degrees of freedom include x and y-directions.

Regarding claims 3 and 28, claim 3 (6,757,053) further includes “the connector assembly allows for relative movement of the masses along the first axis and inhibits relative movement of the masses along the second axis (col. 34, lines 66-67 and col. 35, lines 1-4, where the first axis is the X axis and the second axis is the Y axis). Claims 3 and 28 do not include “wherein the stage mover assembly moves the stage along a first axis and along a second axis, the axes being orthogonal to each other.”

However, it would be obvious to have a stage mover move along a first axis and second axis as set forth in claim 4 (col.35, lines 8-10, where the X and Y axis are

orthogonal axes). Thus, it would have been obvious to one ordinary skilled in the art at the time the invention was made to modify claims 3 and 28 (6,757,053) in a matter described above for at least the purpose to provide versatile movement.

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

8. Claims 1-4, 6-9, 13, 15, 16, 17, 19, 20-29, 31-34, 38, 40, 41, 42, 44-46 and 48-50 are rejected under 35 U.S.C. 102(b) as being anticipated by Tanaka (US 2002/0075469).

Regarding claims 1 and 26, Tanaka teaches

- “a stage (fig. 2, ref. “WST”) that retains the device ([0080], lines 2-3),
- a stage mover assembly (fig.2, refs.# 54, 56, 58A-B, 60A-B, and 62) connected to the stage (see fig. 2 and [0080], line 3),
- the stage mover assembly moving the stage and generating reaction forces ([0005, lines 5-6),
- and a reaction assembly (fig. 2, refs.# 46, 48A-B, 58A-B and [0101], line 2-3, a reaction-force-discharging mechanism) coupled to the stage mover assembly ([0039, lines 7-9)

- the reaction assembly including a first reaction subassembly having a first mass (fig. 2, ref.# 58A), a second reaction subassembly having a second mass (fig. 2, ref. #58B)

- and a connector assembly (fig. 3, ref.# 110A-B) that connects the reaction subassemblies together (fig. 3, refs.# 58A-B is connected via 110A-B) allows for relative movement of the masses with at least one degree of freedom and inhibits relative movement of the masses with at least one degree of freedom ([0100], lines 7-9)."

Regarding claims 2 and 27, Tanaka teaches

- "wherein the stage mover assembly moves the stage with two degrees of freedom ([0080], lines 13-14),

- the reaction assembly reduces the reaction forces in the two degrees of freedom that are transferred to the mounting area ([0100], lines 7-9 and [0102], lines 5-8),

- and the connector assembly allows for relative movement of the masses with at least two degrees of freedom ([0112], lines 4-6, an absorber connecting mounting members)."

Regarding claims 3 and 28, Tanaka teaches

- "wherein the stage mover assembly moves the stage along a first axis and along a second axis, the axes being orthogonal to each other ([0080], lines 13-14),

- and the connector assembly allows for relative movement of the masses along the first axis and inhibits relative movement of the masses along the second axis ([0125], lines 7-11)."

Regarding claims 4 and 29, Tanaka teaches "wherein the reaction assembly adjusts the position of the masses along a third axis relative to the mounting area ([0110], lines 8-11)."

Regarding claims 6 and 31, Tanaka teaches "wherein the masses move independently along the first axis and the masses move concurrently along the second axis relative to the mounting area ([0102], lines 6-10 where the x and y-axis guides move in their corresponding directions in reaction to a force)."

Regarding claims 7 and 32, Tanaka teaches "wherein when the stage mover assembly moves the stage along the first axis in one direction, at least one of the masses moves along the first axis in an opposite direction ([0102], lines 1-2 and 6-8)."

Regarding claims 8 and 33, Tanaka teaches "wherein when the stage mover assembly moves the stage along the second axis in one direction, the masses move concurrently along the second axis in the opposite direction ([0100], lines 7-9)."

Regarding claims 9 and 34, Tanaka teaches "wherein the first reaction subassembly includes

- a first X guide (fig.2, ref.# 62) that guides the movement of the first mass along a first axis and
- a first Y guide (fig.2, refs.# 58A) that guides the movement of the first mass and

- the first X guide along a second axis ([0080], lines 10-14, where guides provide movements in the x and y-directions.)”

Regarding claims 13 and 38, Tanaka teaches “wherein the connector (fig.3, ref.#110A-B) assembly secures the masses together ([0012], lines 3-5 and [0013], lines 8-11, where masses are secured via mounting members refs.# 106A-D).

Regarding claims 15 and 40, Tanaka teaches “wherein the connector assembly includes a pair of spaced apart connectors (fig.3, refs. # 106A-D where these are mounting members).”

Regarding claims 16 and 41, Tanaka teaches “wherein at least one of the connectors includes a bar (fig3, refs.# 110A-B) and a joint (fig. 3, refs.# 106A-D).”

Regarding claims 17 and 42, Tanaka teaches “a stage base (fig.2, ref.# 56) that supports the stage (fig. 2, ref. “WST”).”

Regarding claims 19 and 44, Tanaka teaches “wherein the stage mover assembly includes a guide bar (fig.1, refs.# 58A-B) that guides motion of the stage ([00810], lines 11-13), the guide bar being supported by the reaction assembly independently of the stage base ([0082], lines 4-5, where guide bars are in non-contact with the z-guide, which is part of the stage base).”

Regarding claims 20 and 45, Tanaka teaches “wherein the stage mover assembly includes a guide bar (fig. 3, ref.# 62 is an x-axis guide) that guides motion of the stage, the guide bar being supported by the stage base (see fig. 3, ref.# 56 (stage base) supports ref.62 via refs.# 66A-B and 64.)”

Regarding claims 21 and 46, Tanaka teaches "where the reaction assembly is supported by the stage base (see figure 3, ref#. 56 (stage base) supports refs.# 58A-B (reaction assembly))."

Regarding claims 23 and 48, Tanaka teaches "An exposure apparatus (fig.1, ref.# 10 and ([0054], lines 11-13) including the stage assembly of claim 1 (see abstract)."

Regarding claims 24 and 50, Tanaka teaches "A device manufactured with the exposure apparatus of claim 23 ([0054], lines 11-13)."

Regarding claim 25 and 49, Tanaka teaches "A wafer on which an image has been formed by the exposure apparatus of claim 23 ([0054], lines 11-13)."

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claims 5, 10-12, 14, 18, 30, 35-37, 39 and 43 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tanaka in view of Ono et al (US 2003/0184724).

Regarding claims 5 and 30, Tanaka teaches all of the claimed limitations except "wherein the reaction assembly independently adjusts the position of the masses along the Z axis."

However, having “wherein the reaction assembly independently adjusts the position of the masses along the Z axis” is routine in the art as taught by Ono et al ([0010], lines 9, where a reaction mass is allowed to move along the Z axis). Thus, it would have been obvious to one ordinary skilled in the art at the time the invention was made to modify Tanaka in a matter described above for at least the purpose to reduce vibrations in a third axis.

Regarding claims 10, 11, 35 and 36, Tanaka teaches all of the claimed limitations except a first trim assembly, which includes an X and Y trim mover, that adjusts the position of the first mass along the first axis and a Y trim mover that adjusts the position of the first mass and the first X guide along the second axis.

However, a first trim assembly, which includes an X and Y trim mover, where the X trim mover adjusts the position of the first mass along the first axis and the Y trim mover that adjusts the position of the first mass and the first X guide along the second axis is routine in the art as taught by Ono et al (fig. 1, where ref.# 96 (trim mover) is used to adjust the position of a reaction mass [0080], lines 5-6; a guide that allows motion of a reaction mass [0010], lines 8-9). Thus, it would have been obvious to one ordinary skilled in the art at the time the invention was made to modify Tanaka in a matter described above for at least the purpose to maintain stability of the stage device.

Regarding claims 12 and 37, Tanaka teaches all of the claimed limitations except “wherein the reaction assembly independently adjusts the position of the masses along a first axis.”

However, having a reaction assembly that adjusts the position of the masses along a first axis is routine in the art as taught by Ono et al ([0109], lines 7-8). Thus, it would have been obvious to one ordinary skilled in the art at the time the invention was made to modify Tanaka in a matter described above for at least the purpose to reduce undesired movements of the system.

Regarding claims 14 and 39, Tanaka teaches all of the claimed limitations and further teaches a connector of the guide bars. Tanaka does not teach “the reaction subassembly that guides the motion of the respective masses along a first axis.

However, having “wherein each reaction subassembly includes an X guide that guides the motion of the respective masses along a first axis” is routine in the art as taught by Ono et al (see fig.1, ref. # 57A-B (reaction masses) are movable on ref.# 56A-B (x-stage movers)). Thus, it would have been obvious to one ordinary skilled in the art at the time the invention was made to modify Tanaka in a matter described above for at least the purpose to provide dampening of any unwanted vibration disturbances.

Regarding claims 18 and 43, Tanaka teaches all of the claimed limitations except “a base isolator that adjusts the position of the stage base relative to the mounting area and the masses.”

However, having “a base isolator that adjusts the position of the stage base relative to the mounting area and the masses is routine in the art as taught by Ono et al ([0033], lines 1-2 and 6-9 where the actuator adjusts the height of the stage base).” Thus, it would have been obvious to one ordinary skilled in the art at the time the invention was made to modify Tanaka for at least the purpose to reduce vibrations throughout the apparatus.

11. Claim 22 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tanaka in view of Sakino et al (5,040,431).

Regarding claim 22, Tanaka discloses all of the claimed limitations except a subassembly adjuster.

However, by having “a subassembly adjuster that independently adjusts the position of the masses relative to the stage base and the mounting area” is routine in the art as taught by Sakino et al (see col. 6, lines 11-12). Thus, it would have been obvious to one ordinary skilled in the art at the time the invention was made to modify Tanaka in a matter described above for at least the purpose to reduce vibrations throughout the system.

12. Claim 47 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tanaka in view of Takashima (US 2004/0145715).

Regarding claim 47, Tanaka teaches all of the claimed limitations except “wherein each reaction subassembly includes a mass support that allows the masses

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to move independently along a first axis and allows the masses to move concurrently along the second axis.”

However, “wherein each reaction subassembly includes a mass support that allows the masses to move independently along a first axis and allows the masses to move concurrently along the second axis” is routine in the art as taught by Takashima ([0043], lines 5-6 and [0044], lines 4-5 where the stators are allowed to move independently or correspondingly). Thus, it would have been obvious to one ordinary skilled in the art at the time the invention was made to modify Tanaka in a matter described above for at least the purpose to reduce random or correlated vibrations of the stage device.

Conclusion

13. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The following references teach stage driving systems that compensate reactions force: Tim Poon et al (US 2003/0067592), Poon et al (US 6,597,435) and Wakui et al (US 5,504,407).

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kevin Gutierrez whose telephone number is (571)-272-5922. The examiner can normally be reached on Monday-Friday: 7:30 a.m. - 4:30 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Judy Nguyen can be reached on (571)-272-2258. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Kevin Gutierrez
Examiner
Art Unit 2851

July 11, 2005


JUDY NGUYEN
SUPERVISORY PATENT EXAMINER